

REPORT
OF THE
SURVEY OF THE ROUTE
OF THE
GALENA AND CHICAGO

UNION RAIL ROAD,

BY RICHARD P. MORGAN, ENGINEER.

TOGETHER WITH THE ORIGINAL CHARTER OF THE COMPANY,
AND AMENDMENTS THERETO.

CHICAGO :
DAILY TRIBUNE PRINT
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FOR 1847.

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WITHDRAWN
From the C. H. S.

To the Directors of the Galena and Chicago Union Railroad:

GENTLEMEN :—

By a survey of the country between Chicago and Galena, for the purpose of discovering the best line for a Railroad, I have been enabled to select a route which will, I trust, fully meet your views and sustain the opinion you have previously entertained of the feasibility and importance of the undertaking. The principles upon which Railroads are located, depend, in a great measure, upon the nature of the country through which they pass, of the business they are designed to accommodate, and upon the amount of capital which can be advantageously invested to render them correspondingly efficient. There was, in the present instance, connected with these principles, another consideration, by which I was governed, arising from the peculiar character and importance of the work in question, as forming part of the great line of railroad communicating between the Atlantic and the Mississippi. For the last thirty years, during which period the western country has been rapidly increasing in population and importance, internal improvements have contributed in a degree beyond all estimation to accelerate the development of its resources, to add to the value of every article of export, and to create business which could not exist without them. The main lines, either of canals or railroads, extending to the Atlantic cities, have been constantly thronged by an incessant multitude, travelling for business or pleasure, while a traffic exceeding all previous anticipation, has been annually increasing, till it is scarcely accommodated by the means provided for its transportation. The Erie Canal has opened an avenue to the great Lakes, without a parallel in the amount of business it commands, but utterly inadequate to the future wants of the vast country it approaches. The Welland Canal, the Erie Railroad, the contemplated Central Railroad of Pennsylvania, are all strong indications of the

views and feelings of the Eastern cities. The day has arrived when an intense interest is aroused ; the attention of capitalists has been directed westward, and is drawn to points where the great streams of business must accumulate from the valley of the Mississippi ; and Chicago will soon be regarded as the great depot at the head of the Lakes—a central point for eastern railroads, and the medium of a commerce eventually to exceed in magnitude all that now exists in the intervening countries.

Under the full impression of the truth of these considerations, and regarding the route of the Galena Railroad as admirably calculated for reaching the Mississippi at a favorable point, the conviction was produced in reference to the survey, that the greatest possible skill and care were required on the part of the engineer, in selecting a route thoroughly adapted to the requirements of a country unequalled in fertility, and of an extent to which it would be impossible at present to set limits. A map which accompanies the report will aid in rendering the following description of the line more clear and satisfactory, while it will show, in part, the extensive country which must come under the immediate influence of a Railroad so located ; also the relative position of several important points in the interior,

The survey was commenced near Chicago, on the half section line corresponding with the centre of Kinzie street, on which course it continues for thirteen miles, crossing the Des Plaines river a little south of the St. Charles road. The surface of the ground was found to rise to a point fifty feet above Lake Michigan, so uniformly as to require no gradients above three feet to the mile. The continuance of a straight line farther west might involve expenses beyond the advantages to be gained, and in order to cross the ridge which divides the waters of the Des Plaines and Salt creek, to the best advantage, the line diverges a little to the northward, changing its direction by a slight curvature, and continues on a straight line four miles, nearly to Salt creek. The elevation here is 96 feet—a cutting through the ridge brings the gradients to 12 feet in the mile, gradually ascending westward. Beyond Salt creek, a course nearly west is again pursued and continues for ten miles to the head waters of West Du Page river—altitude 160 feet, no gradient over ten feet to the mile. On approaching Fox river, the country falls off rapidly into a deep valley ; if crossed, either at right angles or diagonally, a heavy gradient would be required, descending to the west, thereby diminishing much the effective power of the railroad ; because experience has shown that the traffic

eastward will be three to one greater than that to be transported westward. The line was therefore continued nearly northwest over a level prairie, seven miles. From this point, which is near the northwest corner of Du Page county, the route is almost north, and to maintain the level of 160 feet, passes through Elgin, in the upper part of the east village, and continues for four miles farther up the river to a suitable place for a bridge, which will be 36 feet high, and one mile below the village of Dundee.

The summit or dividing ridge between Fox river and the head waters of Kishwaukie is considerably more elevated than the county seat of Elgin and St. Charles, but there is no depression on pursuing this ridge southward between Fox and Rock rivers till the head waters of streams emptying into the Illinois are met with. There is a remarkable ravine or rather valley five miles above Dundee, through which the waters of Crystal Lake are discharged into Fox river. I could discover no place, above Aurora, so favorable for the construction of a railroad, on which light gradients are of primary importance. The summit is 145 feet above the bridge across Fox river. By following the western bluff of the valley, and continuing on the side hill for seven miles beyond Dundee, a gradient nearly uniform can be maintained, nowhere exceeding 17 feet to the mile. It may hereafter be a consideration, whether the steepest gradient shall be reduced to 15 feet by some additional expense of excavation and embankment. This part of the line might also be varied and run to Crystal Lake. Whether the additional distance will be compensated by any natural advantages in the ground, or by approaching three miles nearer to the centre of McHenry county, must be determined hereafter.

On proceeding westward the country presents to the eye an uninterrupted view of even surface for an immense distance. For $28\frac{1}{2}$ miles the Kishwaukie falls gradually and slowly, the surface of the country admitting the construction of a railroad, nearly level, to Belvidere. From Belvidere to Rockford two routes have been surveyed, the more direct line of nearly 14 miles requiring gradients descending to the westward 15 feet to the mile, while by adding $5\frac{1}{2}$ miles in distance and passing farther down the valley of the Kishwaukie through Milford and thence northward over the flats east of Rock river, a line almost perfectly level can be adopted. At Rockford, on the east side of the river, and at the southern extremity of the village, is a high bluff, through which it will be expedient to make a cutting of 15 feet for about one-third of a mile, in order to reach in a proper direc-

tion the most eligible place for a bridge, which must be 40 feet high and 650 feet in length. The bottom of Rock river is, at this place, composed of smooth rock, eighteen inches below the surface of the water at a common stage, and does not essentially vary in depth at any place in crossing the stream. Excellent building stone for piers and abutments can be procured within half a mile. From Rockford the line still bears to the northward, over a smooth country, rising only 40 feet in 20 miles, to a point northeast from Twelve Mile Grove and near the Pekatonic river—no gradient over eight feet to the mile, after cutting 25 feet for a short distance, in the dividing ridge between that stream and Rock river. Following the valley of the Pekatonic to Freeport, the gradients are from two to six feet in a mile.

Near the mouth of Yellow river, $1\frac{1}{2}$ miles below Freeport, there is a choice of two routes, the one following up the river to its source, the other through Freeport by Preston's Branch, on the north side of a range of mounds which lie west of that village, and thence to the head of Yellow river. The first mentioned line was merely explored, the other was surveyed—the gradients having been found to vary from six to twenty feet per mile. If, however, the conclusions I was able to arrive at by my examinations of Yellow river valley are correct, the gradients will fall below 15 feet to the mile, and wholly descending to the east. From the head waters of this stream to Galena the country presents an appearance very much in contrast with the beautiful and even prairies east of Rock river. It is generally composed of high mounds and deep ravines, its prominent characteristics being those of a region rich in mineral treasures.

Fortunately, the dividing ridge between the Pekatonic and those streams which discharge themselves more directly into the Mississippi, lies in the exact course for the railroad, and its surface, which approximates very nearly to a perfect level till within 13 miles of Galena, corresponds, as to elevation, with the ground at the head waters of Yellow river. It is intersected, however, by one deep ravine, through which passes the principal branch of Apple river. Notwithstanding the extraordinary depth of this chasm, it is so narrow between the rocks, where the railroad will cross it, that a bridge can be thrown over it without difficulty. The ridge alluded to extends west to Scales' Mound, where it is crossed by another ridge, extending from Wisconsin at right angles to the first. This separates the Pekatonic and the head waters of Apple river from Fever river, a branch of which runs about a mile and half west of Scales' Mound. From the

summit or ridge alluded to, a ravine extends to the valley of the east fork of that stream. On the side hill, and through this hollow, an uniform gradient for $9\frac{1}{4}$ miles can be maintained, and can be reduced, without any extraordinary expense, to 37 feet per mile. The remaining $3\frac{1}{4}$ miles along the valley of Fever river has a gradient of 10 feet to the mile to a point favorable for entering the city.

The following table contains the proportion of curvature and straight line, also the extent of gradients and level surface on the whole route :

Curvature.		Gradients.									
Miles.	Radius.	No. of miles ascending westward	37	19	4	6	8	4	4	3	50
12	From 3,500 to 5,000 ft.	Feet per mile,	24	3	5	8	10	12	15	18	level.
10	" 2,500 to 3,000 ft.										
160	Straight line.										
182											

The excellence of this line, however, can be better understood by a comparison with other railroads. From Scales' Mound to Chicago, its mechanical effect will be nearly, if not quite, equal to that which is obtained on the celebrated Reading Railroad—the only railroad that can compete with a canal in the transportation of freight.

The true theory of a perfect line for a railroad, is one that is straight and having an uniform gradient corresponding to the amount of traffic passing each way. In practice, variations arise from want of uniformity in traffic. It is nearly uniform on the Reading Railroad, which is principally for the transportation of coal; the gradients are all either level or descending towards Philadelphia; the heaviest descent is eighteen feet to the mile. Consequently, as the same engine must expend double the power on the ascent that would be consumed on the level with the same load, it can draw back little more than the empty cars, with an equal degree of speed; by diminishing the speed, however, an increase of the load may take place to a certain extent, consuming also a proportionable amount of fuel, oil, time, &c. There is, therefore, a ruling gradient dependent upon the nature of the business, and to which the maximum power of the engine should be adapted. Between Scales' Mound and Chicago the ruling gradient would be five feet to the mile, and would reduce the load 25 per cent., as compared with a level. In practice, on a road for general purposes, the engine and tender, together with the cars, usually constitute one-half the gross load, and the power which draws a load down a gradient of eighteen feet to the mile can only return (at the same speed) with the empty cars. If on the Galena road all the descending planes

to the east, are reduced to 15 feet to the mile, the load on the ruling gradient would be as 3 to 1 of goods, compared with the loads moving westward. How nearly this will correspond with the future traffic of the railroad cannot now be precisely determined, but there is a strong probability that the return trade will fall rather below one-third of the immense tonnage in mineral and agricultural products that will seek an eastern market. A slight increase in the cost of transportation, for all products west of the summit, will of course occur in ascending the gradient of 37 feet for $9\frac{1}{4}$ miles, where the power consumed will be more than 2 to 1 over any other part of the line. The average cost, however, of transporting a ton of freight from Galena to Chicago will not be more than 5 per cent. per mile over the rest of the line. There are reasons for supposing that the difference will be still less, for as the elevation to be surmounted is near one of the termini of the road, where a depot with extra engines and hands, when required, would always be in readiness, consequently the amount of traffic could be provided with corresponding moving power without increasing general expenses. Fuel and ordinary repairs would constitute the whole extra cost. In descending from Scales' Mound to Galena, little or no steam would be required, because the accelerated force of the train, moved by its own gravity, would almost bring it into town.

On an undulating road, a full head of steam is necessarily kept up, and no saving of fuel is made excepting on very long inclinations. The great Western Railroad between Boston and Albany is undulating, or at least variable. A train passing eastward from Albany ascends long gradients, from 40 to 60 feet per mile, varied occasionally by intervening levels; after travelling about 50 miles the inclinations increase to eighty feet per mile. Here a full load requires extra power. After reaching the summit, which is at an elevation of 1,400 feet above the Hudson river, the train descends a long incline of nine miles, falling from 78 to 83 feet per mile. This descent is so rapid that little saving can be made in fuel, the steam being employed to aid the brakes in checking the motion of the train. The amount of fuel consumed, however, constitutes but a portion of the expenses of working a railroad. Maintenance of way, hands and general expenses form a large proportion. These do not vary greatly between a level road and one with heavy gradients, although the latter requires some extra workmen, while the track is subject to more from an extra number of engines.

To exhibit fully the loss on heavy gradients, the amount of

goods conveyed, compared with the gross load, should be considered. On a level, the weight of the empty cars, added to that of the engine and tender, constitutes, in general, one-half of the load. On an 80 feet gradient, (the engine and tender weighing 28 tons,) the dead weight becomes as four to one over the amount of goods carried. For instance, assuming 400 tons, including engine and tender, as the load drawn by a 22 ton engine on a level, the weight of goods may be 200 tons, and the effective power must exceed 3,200 lbs.

On an eighty feet gradient, 100 tons will require the same power. Deducting 32 tons for the cars and 28 for the engine and tender, the weight of goods will be 40 tons. Consequently the power consumed for the transportation of freight is five times greater than what is required on a level. Notwithstanding all the disadvantages, the Boston Railroad is successful and transports freight cheaply. It should be remembered, however, that these extremely heavy inclinations extend only over one-fifteenth part of the whole distance, and that 50 feet to the mile is the ruling gradient over the remainder of the line. By a similar calculation, taking into view every circumstance that can affect the conditions of the question, the Boston Railroad consumes three times as much power in conveying a ton of goods as will be required on the Galena Railroad, over the same distance.

From the subjoined tables it will be seen that the total cost of the Chicago and Galena Railroad, with an H rail of 56 lbs., will amount to \$2,648,727. The whole line from Albany to Boston, (on which a barrel of flour is taken through for 25 cents,) cost \$10,000,000. It is true that this is at cost, the profits being made from the way-traffic and passengers. It has been shown that the consumption of power is three to one over the Galena road. Admitting the same general expenses to exist in both cases, (which is at least 25 per cent. in favor of the Boston road,) the cost of transporting a ton of goods from Galena to Chicago would be three-fifths of the expense of taking the same load from Albany to Boston; and the cost of transporting a barrel of flour would be 15 cents.

ESTIMATED COST OF THE CHICAGO AND GALENA UNION RAILROAD.

First Division, from Chicago to Salt Creek—17 miles.

Excavation and hauling of common earth, 126,000	
yards	\$9,965 00
Masonry, 460 yards	1,520 00
Superstructure of bridges, &c.	1,768 00
	<hr/>
	\$13,253 00

Second Division, from Salt Creek to Elgin—23 miles.

Excavation and haulage of common earth, 528,137	
cubic yards, - - - -	\$36,242 00
Masonry, 600 cubic yards, - - - -	2,080 00
Superstructure of bridges, &c. - - - -	6,000 00
	<hr/>
	\$49,722 00

Third Section, from Elgin to Rockford—60 miles.

Excavation and haulage of common earth and	
rock, 884,000 cubic yards - - - -	\$181,300 00
Masonry, 6,490 cubic yards - - - -	15,050 00
Superstructure of bridges, road-bridges & culverts, 27,000 00	
	<hr/>
	\$223,350 00

Fourth Division, from Rockford to Freeport—34 miles.

Excavation and haulage of rock and earth, 570,-	
000 cubic yards - - - -	\$101,000 00
Masonry, 5,460 cubic yards - - - -	20,000 00
Superstructure, road-bridges, &c. - - - -	22 300 00
	<hr/>
	\$143,300 00

Fifth Division, from Freeport to Galena—48 miles.

Excavation and haulage of rock and earth, 1,-	
890,000 cubic yards - - - -	\$283,400 00
Masonry, bridges, culverts, &c. - - - -	104,000 00
	<hr/>
	\$387,400 00

TOTAL COST OF PREPARING ROAD-BED.

Excavation and haulage of 3,998,137 cubic yards ; masonry,	
25,510 yards ; together with cost of culverts, bridges, road-	
crossings, &c., amount to - - - -	\$817,025 00
Add 10 per cent. for engineering and incidental	
expenses - - - -	81,702 50
	<hr/>
	\$898,727 50

If the road is fenced it will add \$1,000 per mile,	182,000 00
Right of way (for the most part gratuitous) allow	50,000 00
Superstructure, at \$7,000 per mile - - - -	1,274,000 00
Depots, repairing-shops, water-stations, engine-	
houses and side-tracks - - - -	114,000 00
Engines and cars - - - -	130,000 00
	<hr/>
	\$1,750,000 00
Add cost of road-bed - - - -	898,727 50
	<hr/>
Total, - - - -	\$2,648,000 50
Or, \$14,553 per mile.	

The foregoing estimate is for a single track ; the bridges being constructed for a double track. It is worthy of notice, however, that the cost of superstructure is much greater than that of the road-bed. In the Eastern States, on very favorable lines, the graduation has cost twice as much as the track, and in some instances has exceeded it, four or five fold. Such results are striking illustrations of the superior natural advantages of the country through which the Chicago and Galena Railroad passes, so far as relates to cheapness of construction, and the opportunities afforded for attaining great mechanical effect. They have been arrived at by liberal allowances in the measurements, as well as by keeping within the limits of plain and established rules to estimate practical effects. That nothing delusive might be adopted in seeking the third great element on which the success of a railroad depends, I allude to the amount of business it will command ; all the statements which have been obtained, either from careful inquiry while on the route, or from published documents of statistics which I have been able to obtain, have been closely scrutinized and large allowances made for every possible exaggeration.

With these precautions, the following table has been constructed, exhibiting the kind and quantity of freight, which would constitute the business of the first year, if the railroad were now in operation :

FREIGHT TABLE.

<i>Tonnage from the West.</i>		<i>Tonnage from the East.</i>	
Lead and copper, 10,000 tons, at \$3.50	\$35,000 00	6,000,000 ft. of boards, plank, and joists, 6,000 tons at \$2	\$12,000 00
Wheat, including flour, 2,000,000 bushels at 5 cts.	100,000 00	Shingles, lath, and other lumber, 1,000 tons at \$3	3,000 00
Corn, oats, barley, potatoes, &c. 5,000 tons at \$2	10,000 00	Merchandise, including groceries, hardware, crockery, paints, &c. at \$4	20,000 00
Pork and beef, 4,000 tons at \$2	\$8,000 00	Salt, iron, farming tools, castings, machinery and every other article, 4,000 tons, at \$3	12,000 00
Cheese, lard, butter, &c., 500 tons at \$4	2,000 00		
Wool, hides, skins, live stock, &c. 1,000 tons at \$3	3,000 00		\$47,000 00
Manufactured articles & mechanical products, 500 tons at \$1	4,000 00		
Wood, coal, lime, brick, stone, ship timber, staves, &c. 2,000 t., \$2	4,000 00	Trade from the West,	\$166,000 00
Sugar, coffee, molasses, &c. 1,500 tons at \$2	3,000 00	“ “ East	47,000 00
	\$166,000 00	Total	\$213,000 00
		Passengers	150,000 00
		Mails	30,000 00
		Total income	\$393,000 00

Fifty thousand through passengers at \$3 each, yielding a revenue of \$150,000, is assumed as equal to all the travel from every source. The present number of inhabitants in the district of country from which the railroad would afford

the greatest facilities for passing, between the Mississippi and Lake Michigan, is ascertained by the last State census and other authentic data, to exceed 200,000. The business habits of the people, their enterprise and the present importance of the cities at the termini of this railroad, are well known to you. Every farmer wants to sell wheat, and every farmer's family wishes to come occasionally to Chicago. I am confident that when you consider these facts, in addition to the well known periodical crowd of travellers from the South, together with a portion of the multitude emigrating westward, also the new commercial and business relations which must grow up with, and independently of the railroad, you will at once pronounce the estimate of 50,000 annually as very moderate.

To simplify in the present instance the mode of calculating the cost of working the railroad, let the practical fact connected with the Boston Railroad, that 25 cents is the cost of transporting a barrel of flour from Albany to Boston, and that the total cost of working the Galena Railroad is but two-fifths as compared with it, 15 cents would then be the cost of taking a barrel of flour from Galena to Chicago, or at the rate of \$1.50 for every 2,000 lbs. Consequently, if the total of 100,000 tons, as per estimate, were conveyed over the whole line, the total income for freights, which is \$213,000, would leave but \$63,000 clear profit. But it must be remembered that a great proportion of this freight is way traffic, admitting of a reduction of at least \$50,000 out of \$150,000, the total estimated cost of transportation; hence, the clear profits on freight are \$113,000. In reference to the cost of conveying passengers, the proportion of dead weight to a ton of passengers and their baggage is always much greater than its ratio to freight. This arises from two causes—the inequality of travel, and the necessity of high speed. From the first cause, the average number *per diem* each way, out of 50,000, would be 68. Two cars capable of accommodating double the number must be constantly run through, weighing 11 tons, the engine and tender at least 15 tons; to which, adding the weight of the baggage-car and post-office, the whole would equal 30 tons; 68 passengers and their baggage usually weigh but 7 tons. The cost of running this train, including all the hands, repairs of cars and engines, oil, &c., would amount, according to the last report of the Reading Railroad Company, to 91 cents 7 mills per passenger; add two-thirds of this amount for general expenses, and each passenger costs \$1.53, or in the aggregate \$76,500 for 50,000, leaving a balance of profit equat to \$73,500.

Total receipts	-	-	-	-	-	-	-	\$393,000
“ expenses	-	-	-	-	-	-	-	176,500
								<hr/> \$216,500

From these data it is ascertained that in the very first year that the Galena Railroad shall be in operation, over 8 per cent. will be gained on the capital expended. Lest the result should be considered at variance with the effects experienced on Eastern Railroads, let all the circumstances affecting each be fairly investigated, taking again the Boston and Albany railroad as an example. The State of Massachusetts, at the time that great work was commenced, together with that part of the State of New York through which it passes, contains an area of country about equal to that part of Illinois assumed as within the immediate influence of the Chicago and Galena Railroad. The population and value of lands, excepting in particular locations, had been stationary for many years; it was an old worn-out country, deriving its wealth from great industry and economy, while many of its most enterprising citizens had gone West; hence, a railroad over the Green Mountains was treated, by the majority, as a visionary project. Ten years had elapsed before the Legislature would consent to aid in its construction. During the time occupied for this purpose no remarkable effects were produced, population did not increase, property was not generally enhanced in value, and farmers were opposed to it. Boston capital at length forced it through, over every physical obstacle and in spite of all opposition, and has obtained a share of western business, contributing at the same time to the receipts of the railroad and her own commercial prosperity. But the effects of this great work were slowly and gradually developed; at first scarcely paying expenses, afterwards increasing its receipts, for several years at the average rate of 14 per cent. per annum, while its income has increased for the last three years in the astonishing proportion of 40 per cent.

The circumstances connected with the Chicago and Galena Railroad present a most striking contrast. Instead of barren mountains, it passes through one of the most fertile countries on the globe, where every man will rejoice in its construction and contribute all he is able for the purpose. Instead of stagnation and opposition, as in Massachusetts, during the interval between its commencement and completion, its population and wealth will increase by anticipation, and the accumulated products of industry and enterprise will throng the railroad immediately upon its going into operation. Settlers now avoid coming on to lands of the utmost

fertility and possessing every good quality they can wish for, if compelled to sacrifice all they can make in hauling their products to market. It is a fact well known, and frequently adverted to, that a farmer near Rock river expends as much in getting his wheat to market as all other expenses of ploughing, sowing, harvesting and threshing. To build the Galena road is to offer an annuity of \$150 to every farmer within 20 miles of it, who lives 40 miles from Chicago. If it could be completed by 1850, and if it could be known that such would be the case, it is a moral certainty that an amount of agricultural and mineral products would be awaiting its operation, equal to what is assumed in the estimate as the business of a large portion of the year. It is not, however, from these causes alone that the increase of population, instead of going on in a decreasing ratio, will proceed with as much rapidity as for years past; the railroad will offer a thousand inducements to enterprise that cannot now exist; much fine water power lying useless will be applied to various purposes; a new stimulus will be given to manufacturing and mechanical labor, and by establishing numerous branches of business, which could not otherwise exist, will continue to create new traffic and rapidly accelerate the period when Northern Illinois will take the first rank in wealth and importance.

Boston is a large commercial city, offering a good market for a large and industrious population, drawing to itself by railroads an immense trade, much of which sought other points previous to their construction; the Connecticut and Hudson rivers will ever continue to absorb a large share of the business. The Galena road has nothing of this kind to contend with; a Southern market has ever been inferior to the Eastern, and competition, excepting by a parallel railroad, would be impracticable.

I have, gentlemen, so far confined my views to the country east of the Mississippi, and my estimates are based wholly on its products, &c. I have kept, in every instance, below the results which the reports of railroad companies have fully established, and have not attached to the Galena Railroad the whole value which will be eventually realized from its natural advantages. A few years ago, an attempt was made to give the Legislature of New York suitable impressions respecting the great resources of the West, and the business which must accumulate on the borders of these inland seas, as well as to show, by the history of the past, the grand and inevitable effects which must result from industry and enterprise in a country of unbounded fertility, and possessing

the means of approaching the great markets by navigable waters. The author of the eloquent report alluded to was treated as an enthusiast who would plunge the State into expenditures the most extravagant in the pursuit of objects altogether visionary. But the predictions of Mr. S. Ruggles have already been more than realized; already has the business of the Erie Canal exceeded its capacity of performance, and the commerce on the Lakes is finding vent in other channels. Nevertheless, if we turn our views westward to ascertain the existence of similar elements of prosperity, we are not disappointed. The Valley of the Mississippi, north of the Des Moines Rapids and in the illimitable country west of it, possesses unsurpassed sources of wealth and commerce. Iowa already contains 100,000 inhabitants, and if the Galena Railroad should be built, the products of six millions of acres of fertile land, together with an amount of mineral or metal of which no adequate estimate can now be made, will be brought to Galena and reshipped on the railroad. That the causes now operating to draw off the products of the West from New Orleans will continue to exist, cannot well be doubted; and hence, by the perfection to which railroads have arrived every where, combined with the great natural superiority of the route from Galena to Chicago, sufficient facilities will be offered to compete always successfully with a navigation in which risk is greater, and climate, in some instances, destructive.

In view of these facts, as relating to the future prosperity of the Chicago and Galena Railroad, I will not now venture to make figures; they speak their own importance, without comment, to the mind of every intelligent man. The success of the undertaking is entirely independent of them; and yet if the country between the Mississippi and Lake Michigan were a perfect desert, there would be enough business in a few years concentrated at Galena, from the western shores of that great stream, to give ample support to a railroad connecting that city with Chicago.

It has been my duty, gentlemen, as an engineer, to make several reports on different lines for railroads; I have in those cases eagerly sought out every source of revenue, given to the work its full power and influence, and neglected no argument that could be reasonably used in their favor. In the present instance, my position forms as strong a contrast as do the natural and local advantages of the Galena Railroad when compared with the barren mountains of Massachusetts and the difficulties over which art and enterprise have triumphed. I have in this report pruned off from every sta-

tistical statement I have obtained, that was to form the basis of my estimates, and have assumed my data from the present condition of the country, instead of anticipating the certain increase of wealth and population which must take place before this railroad can be built.

It is proper, however, to advert briefly to the extension of this railroad westward. A bridge could be built, as I am informed, across the Mississippi. Let a railroad gradually follow the improvements of the country, as they recede westward, and in a few years another flood of business would find its course through this great avenue, to the extent and continued increase of which, no man living can set limits. I might carry these views still farther. I shall feel satisfied, however, if my efforts should lead the attention of the public to the main facts in question, and convince them of the inducements for immediate action, in a work which the interests of Northern Illinois imperatively demand, and from which Galena and Chicago, as well as the Eastern cities, are sure to derive great and permanent benefits.

One highly interesting part of my duties has yet, however, to be adverted to, and as forming an extension of my survey, to ascertain the practiability of connecting the Chicago and Galena with the Michigan Central Railroad. Your attention will be, without doubt, directed to it, in all its important relations. After examining the proposed terminus in Chicago, and the proposed location on the Lake shore, opposite the city, the line was continued on an uninterrupted level, and with almost imperceptible curvature, along the inside of the bluffs near the margin of the Lake, far enough back to be beyond the effect of storms. With trifling exceptions, arising from slight swells of sandy ground or gulleys, requiring, for the most part, only small open culverts, the surface is equally good to the mouth of the Calumet river, which is twelve miles. The course, after entering the State of Indiana, causes the line to recede a little from the Lake, through thick woods intersected by sloughs and low sand ridges, nearly parallel to the direction of the railroad. These sloughs, however, are not unfavorable for construction, being seldom over three feet in depth, and having invariably a hard sandy bottom. The road may, therefore, be located in long straight lines connected by light curves, and maintaining a level nearly to the Grand Calumet, about 24 miles from Chicago. For six miles, near and beyond the stream, the ground is more broken, the inequalities, however, being sand. The inclinations of the road-bed will be three or four feet to the mile. An embankment of ten feet in height, will be also necessary. It

is 50 chains wide, where the railroad crosses it. From Miller's tavern, which is thirty miles from Chicago, the route continues along the southern side of a narrow lake; $4\frac{1}{2}$ miles beyond which, it may be extended into a smooth valley, reaching nearly the whole distance from here to New Buffalo, the surface of which scarcely varies from a level, while but slight departures from a straight line are anywhere necessary. Between the Lake referred to and the valley, there are three sand ridges, which must be excavated. They contain, in the aggregate, about 17,000 cubic yards, the removal of which is $12\frac{1}{2}$ cents per yard. Clearing and grubbing on the line, although a material item, is compensated for by the abundance of good timber close at hand. The preparation of a road-bed, comprising clearing and grubbing, excavation, bridges and culverts, is estimated at \$1,150 per mile, which on 60 miles, equals \$69,000. The superstructure, with longitudinal timbers and a plate rail of 15 lbs. to the yard, including laying track, will cost \$3,500 per mile. Adding to these items, \$10,000 for piling and filling round the Lake shore, opposite to Chicago, \$10,000, for depots, engine-houses, water-stations, &c., together with 10 per cent. for incidental expenses, and the total cost of the road will be \$328,000.

I will not attempt, gentlemen, to expatiate on the utility and importance of this road. It is perfectly obvious that it must pay a large income, when passengers can be conveyed from Chicago to New Buffalo in two hours, and from thence to Detroit in eight more. I will merely observe, in conclusion, that the result of my survey is doubly gratifying, in showing the feasibility and cheapness of executing the work, as well as the saving of several miles in distance over the travelled road. The light gradients and direct course adopted, render this route of incalculable value, in reference to the future, for it is certain, that however the navigation of the Lakes may be improved, a large portion of the accumulated products of the Valley of the Mississippi and the intermediate country, must find its way over the Chicago and New Buffalo Railroad.

I am, Gentlemen,
Your obedient Servant,
RICHARD P. MORGAN.



AN ACT
TO INCORPORATE THE
GALENA AND CHICAGO
UNION RAIL ROAD COMPANY,

APPROVED JANUARY 16, 1836.

SEC. 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly,* That all such persons as shall become Stockholders, agreeably to the provisions of this act, in the Corporation hereby created, shall be, and for the term of sixty years from and after the passage of this act, shall continue to be a body corporate and politic, by the name of the "GALENA AND CHICAGO UNION RAIL ROAD COMPANY," and by that name shall have succession for the term of years above specified, may sue and be sued, complain and defend, in any Court of Law or Equity, may make and use a common seal, and alter the same at pleasure, may make by-laws, rules and regulations for the management of property, the regulation of its affairs, and for the transfer of its stock, not inconsistent with the existing laws, and the constitution of this State and of the United States, and may moreover appoint such subordinate agents, officers, and servants, as the business of the said Corporation may require, and allow to them a suitable compensation, prescribe their duties, and require bond for the faithful performance thereof, in such penal sums, and with such sureties as they may choose, who shall hold their offices during the pleasure of a majority of the directors of the said Corporation.

SEC. 2. The said Corporation shall have the right to construct, and during its continuance, to maintain and continue a Railroad with a single or double track, and with such ap-

pendages as may be deemed necessary for the convenient use of the same, from the town of Galena, in the county of Jo Daviess, to such point at the town of Chicago as shall be determined, after a survey shall have been made of the route, to be the most eligible, proper, direct and convenient therefor.

SEC. 3. The capital stock of the said Corporation shall be one hundred thousand dollars, which shall be deemed personal property, and shall be divided into shares of one hundred dollars each. The capital stock of said Corporation may at any time hereafter, be increased to a sum not exceeding one million of dollars, if the same shall be judged necessary to the completion of the said work, and the same shall be subscribed for and taken under the direction of the Directors of the said Corporation, wherever they shall direct one or more books to be opened for such purpose, and shall be subscribed and taken in such manner as the Directors of the said Corporation for that purpose shall order and appoint.

SEC. 4. That William Bennet, Thomas Drummond, J. C. Goodhue, Peter Semple, J. W. Turner, E. D. Taylor, and J. B. Thomas, Jr., shall be Commissioners for securing subscriptions to the capital stock of said Corporation, who shall give notice within twelve months after the passage of this act, of the time and place where books will be opened at Galena and Chicago, and such other places as they may deem necessary, in some public newspaper printed at the said places, at least thirty days previous to the opening such books, for the receiving subscriptions to the capital stock of said corporation.

The majority of the Commissioners shall attend at the place appointed by such notice, for the opening of said books, and shall continue to receive such subscriptions to the capital stock of said Corporation, from all persons who will subscribe thereto, until the whole amount thereof shall have been subscribed, when the said books shall be closed. Each subscriber at the time of subscribing, shall pay to the Commissioners, one dollar on each share of the stock subscribed for by him, and the said Commissioner shall, as soon as the Directors are elected, deliver to them the whole amount so received.

SEC. 5. The affairs of said Corporation shall be managed by a Board of seven Directors, to be annually chosen by the stockholders, from among themselves, as soon as may be, after the stock has been subscribed. The Commissioners shall give notice of the time and place at which a meeting of the stockholders will be held for the choice of Directors. And at such time and place appointed for that purpose, the Commissioners, or a majority of them, shall attend and act

as inspectors of said election, and the stockholders present, shall proceed to elect their Directors by ballot, and the Commissioners present shall certify the result of such election, under their hands, which certificate shall be recorded in the books of the corporation, and shall be sufficient evidence of the election of the Directors therein named.

All future elections shall be held at the time and in the manner prescribed by the by-laws and regulations of the said Corporation. Each stockholder shall be allowed as many votes as he owns shares at the commencement of such election, and a plurality of votes shall determine the choice, but no stockholder shall be allowed to vote at any election after the first, for any stock which shall have been assigned to him within thirty days previous to holding such election.

The said Directors shall hold their offices for one year after their election, and shall elect one of their number as President of the said Board.

SEC. 6. The said Corporation is authorized to construct, make, and use, a single or double Rail Road or way, of suitable width and dimensions, to be determined by the said Corporation, on the line, course or way, which may be designated and selected by the Directors, as the line, course, or way, whereon to construct and make the same; and shall have power to regulate the time and manner, in which goods, effects, and passengers shall be transported, taken, and carried on the same; and to prescribe the manner in which the said Rail Road shall be used; by what force the carriages to be used thereon may be propelled; and the rate of toll for transportation of persons or property thereon; and shall have power to erect and maintain houses, toll-gates, and other buildings, for the accommodation and management of the said road, and transport thereon as may be deemed suitable to their interest. And they may also construct, maintain, and use such other lateral routes as may be deemed advantageous and expedient and necessary, under the same rights and privileges, as by this act is provided for the constructing of the main route. And it shall be lawful, also, for the said Corporation to unite with any other Rail Road Company already incorporated, or which may be incorporated upon any part of the route of said road, upon such terms as may be agreed upon by the Directors of said Companies; and also, to construct such other and lateral routes as may be necessary to connect them with any other route or routes which may be deemed expedient.

SEC. 7. If, at any time after the passage of this act, it shall be deemed advisable by the Directors of the said Corporation, to make and establish a good and permanent Turnpike

Road upon any portion of the route of the Rail Road by this act authorized to be constructed, then the said Directors are hereby authorized and empowered to construct a Turnpike, on any portion of the said Route, of the following dimensions : not less than one hundred feet wide, twenty-two feet of which, shall be based with stone, or gravel, or other hard substance, well compacted together, and of sufficient depth to secure a good foundation where necessary, the whole of which shall be faced with gravel, or stone, of a depth not less than six inches, in such manner as to secure a firm and even surface, rising in the middle by a gradual arch ; and where other roads may intersect, it shall be so constructed that carriages may conveniently pass over the Turnpike road. And the said Corporation is hereby authorized to erect, at both ends of said road, and at such other points upon the line thereof, as many gates as shall be deemed necessary thereon.

SEC. 8. It shall be lawful for said Corporation to appoint toll-gatherers to collect and receive of, and from all persons using said road, the following rates of toll, to wit : For each and every mile of transport or travel upon the said Turnpike road, for a man and horse, two cents ; or for a single person, one cent. For four or six horses or ox wagon and driver, loaded, three cents ; and for the same, when empty, two cents. For all four horse carriages and driver, five cents. For a two horse wagon, or one yoke of oxen and wagon, three cents. For two horse pleasure carriages, four cents. For a one horse carriage or gig, two cents. For horses, mules or cattle in droves, half a cent per head. For hogs, goats and sheep, one mill per head. When sleds are used instead of wheels, one half of the above specified toll : And it shall be lawful for any toll-gatherer to stop and detain any person from going on said road, until he shall pay to him the toll properly chargeable to him ; and when any person shall pay to the toll-gatherer the toll chargeable to him, the toll-gatherer shall give him a ticket, authorizing him to pass the whole distance of the road for which he has paid. And the President and Directors shall cause to be kept upon each gate, in some conspicuous place, where it may be easily read, a printed list of the tolls which may be lawfully demanded. Said Corporation shall cause to be erected mile posts or stones, to be maintained, and also erect guide posts at the intersection of all highways leading into, or from such Turnpike road, on which shall be inscribed the name of the town or public place to which it leads, and if any person shall wilfully cut down such posts, or shall wilfully break or throw down any of the said gates or turnpike, or shall dig or spoil any of the said

road or any thing thereunto belonging, or shall forcibly pass either of the gates, without first having paid the legal tolls, such person shall pay and forfeit for every such offence and injury, the sum of twenty-five dollars, to be recovered by the said Corporation, in an action of debt, before any Justice of the Peace of the County where the offender or offenders may be found; and if any person shall turn out of the said road, and pass any of the gates, and again enter upon such road, to avoid the payment of toll, he shall forfeit to the Corporation the sum of five dollars, to be recovered in like manner.

SEC. 9. If any toll-gatherer shall unreasonably delay, or hinder any traveller or passenger, or shall demand more toll than by this act is allowed, he shall forfeit and pay to the person injured the sum of five dollars, in the manner provided in the preceding section; and if he shall be unable to pay it, the Corporation shall be held responsible therefor.

SEC. 10. As soon as any five miles of the Turnpike road shall be completed, said Corporation may erect gates thereon, and collect the toll allowed by this act. And it shall be the duty of the said Corporation, when said road shall have been completed, to keep it in good repair; and whenever, from any cause whatever, the same shall become injured, the said Corporation shall immediately proceed to repair the same. And it shall be lawful for the said Corporation to commence the construction of the said Railroad, or way, or Turnpike, at such points, on any part of the aforesaid route, or routes, herein before described, as in its judgment it may appear expedient and proper. Said Corporation are authorized to borrow any sum of money which may in their discretion be deemed necessary, not exceeding its capital stock, to aid in the construction of the said roads; and if it shall at any time appear to the said Corporation, that any part thereof, or any surplus funds, are not necessary to be retained, the same may be loaned on such terms as the Directors of the said Corporation may deem proper; not, however, at a higher rate of interest than that now allowed by the laws of this State.

SEC. 11. In case the Corporation shall not be able to acquire the title to the lands through which the said road shall be laid, by purchase or voluntary cession, it shall be lawful for the said Corporation to appropriate so much of said lands as may be necessary for its own use, for the purposes contemplated by this act, on complying with the provisions of the six following sections:

SEC. 12. The Directors may present a petition to the Judge of the Circuit Court of the County in which the said land

may be situate, setting forth, by some proper description, the lands which are wanted for the construction of said Railroad, or Turnpike, or the appendages thereto; and the names of the owners thereof, if known, distinguishing, with convenient certainty, if it can be done, the parcels claimed in severalty by the respective owners, and praying for the appointment of appraisers to assess the damages which the owners of said land will severally sustain by reason of the appropriation thereof by the said Corporation to its own use.

SEC. 13. On the presentment of such petition, said Circuit Judge shall appoint a day for the hearing of the parties in interest and shall direct such notice, as he shall deem reasonable, to be given of the time and place of hearing; and in case it shall appear that any of the owners of said lands is a *femme covert*, an infant or insane, or otherwise incompetent to take proper care of his or her interest, it shall be the duty of said Judge to appoint some discreet and reputable person to act in the premises, in his or her behalf.

SEC. 14. At the time appointed for such hearing, the said Judge shall appoint three disinterested persons, freeholders, residents of the county in which said lands may lie, for the purpose of assessing such damages, and in the order in which they were appointed, shall direct and specify what lands are proposed to be appropriated and occupied by the said Corporation, for the purpose aforesaid.

SEC. 15. Said appraisers, after being duly sworn before some officer properly authorized to administer oaths, honestly and impartially to assess such damages, shall proceed, by viewing said lands, and by such other evidence as the parties may produce before them, to ascertain and assess the damages which each individual owner will sustain by the appropriation of his lands, for the use or accommodation of such Railroad or Turnpike, or their appendages.

SEC. 16. The said appraisers shall make a report to the said Judge, in writing, under their hands, reciting the order for their appointment, and specifying the several parcels described therein, with all necessary certainty, the names of the owners of the respective parcels, if known, and if not known, stating the fact, and specifying also the damages which the owners of the said respective parcels will sustain by reason of the appropriation of the same, for the purposes aforesaid; and in case either of the parties are dissatisfied with the assessment, the said Judge may, on the hearing of the parties and interest, modify the assessment as to him shall appear just.

SEC. 17. On the payment of the damages thus assessed, together with the expenses of assessment, as the same shall

be settled by said Judge, or on depositing the amount thereof for the use of such owners, in such bank or monied incorporation as the said Judge shall direct, the said corporation shall immediately become entitled to the use of said lands for the purpose aforesaid; and the report of the said appraisers, with the order of said Judge, modifying the same, if the same shall have been modified, shall be recorded in the office of the Recorder of the County in which said lands shall be situate, in the same manner and the like effect as Deeds are recorded, without any other proof than the certificate of the said Judge, that the report is genuine.

SEC. 18. And when the said order shall have been so recorded as aforesaid, the said Corporation shall be seized and possessed of such land or real estate, and may enter upon and take possession, and use the same for the purposes herein before recited.

SEC. 19. Said Corporation shall be bound to repair all Public Highways, Bridges, and Water Courses, which may be injured in constructing said Railroad, or its appendages; and shall restore them, as far as practicable, to as good a condition as they were before they were injured.

SEC. 20. The said Corporation shall be allowed three years from the passage of this act, for the commencement of the construction of the said Railroad and Turnpike; and in case the same shall not be completed within ten years thereafter, the privileges herein granted shall be forfeited.

SEC. 21. Any person who shall wilfully injure said Road or any of the appendages thereto, shall be deemed guilty of a misdemeanor, and shall forfeit to the use of the Corporation, a sum equal to three times the amount or damages occasioned by such injury; to be recovered, with costs of suit, in the name of such Corporation, in an action of debt, before any Court having cognizance thereof, or before any Justice of the Peace, in the county where such injury or offence may have been committed.

SEC. 22. This act shall be deemed and taken as a public act, and shall be construed beneficially for all purposes herein specified or intended; and all copies thereof, printed by or under the direction of the General Assembly of this State, shall be received in all courts and places whatsoever in said State, as sufficient evidence thereof, without further proof.

JAMES SEMPLE,

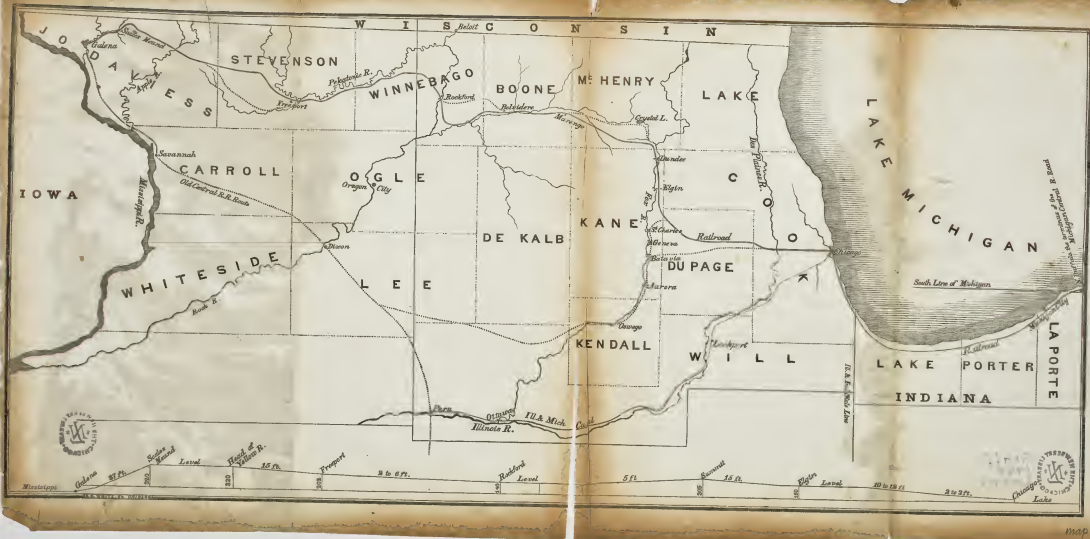
Speaker of the House of Representatives.

A. M. JENKINS,

Speaker of the Senate.

Approved, 16th January, 1836.

JOSEPH DUNCAN.



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STATE OF ILLINOIS, }

DEPT' OF STATE. }

I, ALEXANDER P. FIELD, Secretary of State of the State of Illinois, do certify the foregoing to be a true copy of the enrolled Bill, on file in this Department.

{ L. S. }

In testimony whereof, I have hereunto signed my name, and affixed the State Seal, at Vandalia, the 29th January, 1836.

A. P. FIELD, *Secretary of State.*

AN ACT

TO AMEND AN ACT ENTITLED AN ACT TO INCORPORATE THE
GALENA AND CHICAGO UNION RAILROAD COMPANY:

APPROVED JANUARY 16, 1836.

SEC. 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly,* That the Capital Stock of the Galena and Chicago Union Railroad Company be, and the same is hereby authorized to be increased to a sum not exceeding one million of dollars, in addition to its present capital, with the assent of the Stockholders of the said Company, to enable them to complete the construction of the Road authorized by the Charter of said Company.

SEC. 2. The said additional Capital Stock shall be taken under and according to the provisions of the third section of the original act of incorporation; and the time for the final completion of said Road is extended five years: and the said Company having applied to the United States for a right of way over the public lands, may receive, take, and hold all such lands as may be ceded or granted to said Company by the United States, or by individuals, for the purpose of enabling them to construct said Road, or to erect thereon depots, toll-houses, and for such other purposes and uses as may be deemed necessary and useful to said Company; and they may dispose of any fractional or surplus portion thereof, if any there should be, whenever it shall appear that so much thereof is not absolutely necessary to be retained whereon to construct said Road; and erect such depots, toll-houses, and other appendages, to raise additional means wherewith to enable said Company to construct said Road in the best possible manner.

SEC. 3. Should it appear impracticable for the said Company to construct the said Road the whole distance contemplated by said act, or that it would be more advantageous to the Company, or the public interest, that the said Road should be connected with the State Central Railroad, then the said Company are authorized to terminate the said Road at such point as shall be deemed most practicable—and may intersect and connect the said Road with the said Central Railroad in

its course to Galena: *Provided*, Nothing contained in the provisions of this act shall authorize the said Company to have, purchase, receive, or hold any land upon any line of any Railroad authorized to be constructed by the State, nor to construct any Railroad upon or near the same line, or any Railroad authorized to be constructed by the State.

NEWTON CLOUD,

Speaker of the House of Representatives, pro tem.

W. H. DAVIDSON,

Speaker of the Senate.

Approved, 4th March, 1837.

JOSEPH DUNCAN.

AN ACT

TO AMEND AN ACT TO INCORPORATE THE GALENA AND CHICAGO UNION RAIL ROAD COMPANY, APPROVED JANUARY 16TH, 1836, AND AN ACT TO AMEND THE SAME, APPROVED MARCH 4TH, 1837.

SEC. 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly*, That the Board of Directors of the Galena and Chicago Union Railroad Company shall hereafter consist of such number of Directors as shall be determined upon from time to time by the Stockholders of said Company, at any meeting thereof for the choice of Directors: *Provided*, That such number shall not be less than seven, nor more than thirteen; said Directors shall be stockholders in said Company, and shall be elected annually by the stockholders, either in person or by proxy, and shall hold their offices for one year, and until their successors shall be elected and qualified. But any vacancy occurring in said Board between elections may be filled by the Board at any legal meeting of the Directors; and the person so elected to fill the vacancy shall hold his office until the next annual meeting.

SEC. 2. The words "Bank or Monied Incorporation," contained in the seventeenth section of the Act to Incorporate the Galena and Chicago Union Railroad Company, approved January 16th, 1836, are hereby stricken out of said act, and the words "place, or with such person or persons" inserted in their place and stead.

SEC. 3. There is hereby granted to the Galena and Chicago Union Railroad Company the right of way through such portions of the public land belonging to this State as remain unsold, for the construction and extension of the Railroads proposed or authorized to be constructed by said Company: *Provided*, That the portion of public land occupied therefor

shall not exceed one hundred feet in breadth; that the route of said road or roads shall be designated and marked on the ground by plain landmarks within the period of twelve months from the approval of this act, and a copy of the notes of survey and plat thereof, with a description of said landmarks, shall be transmitted to the Auditor's office within ninety days after said survey shall have been completed as aforesaid: *And provided further*, That if any of said lands shall be sold by the State previous to such survey, the provisions of this section shall not apply to such lands as shall have been thus sold previous to such survey: *And provided further*, That if at any time after the construction of said roads, or any part thereof, the said railroads shall be suffered to fall into utter decay, or shall cease to be used as and for the purposes of a railroad, then and from that time all right of way hereby granted shall revert to the State, and the same shall be disposed of by the State in the same manner that they might have been disposed of if this act had not been passed.

SEC. 4. Should the said Company find its present capital insufficient for the completion of the works authorized by the acts to which this act is an amendment, and for the accomplishment of the objects of the same, the Board of Directors of said Company are hereby authorized and empowered to increase the capital stock of said Company to any amount not exceeding three millions of dollars.

SEC. 5. Nothing in this act contained, nor in the acts to which this is an amendment, shall be so construed as to confer any banking powers upon said Company.

SEC. 6. This act shall take effect from and after the time that it shall be accepted by the stockholders of said Company, at a regular meeting to be called for that purpose, the evidence of which acceptance shall be the record of that fact upon the books of said Company.

NEWTON CLOUD,

Speaker of the House of Representatives.

JOSEPH B. WELLS,

Speaker of the Senate.

Approved, Feb. 24, 1847.

AUGUSTUS C. FRENCH.

DEPARTMENT OF STATE, ILLINOIS.

I, HORACE S. COOLEY, Secretary of State, do hereby certify the foregoing to be a true and correct copy of the original law on file in my office.

{ L. S. }

Witness my hand, and the Great Seal of State, at Springfield, this 22d day of March, A. D. 1847.

H. S. COOLEY, *Secretary of State.*

